

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554**

In the Matter of: (
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A National Broadband Plan for Our Future (GN Docket No. 09-51

**Connected Nation, Inc. Comments
On A National Broadband Plan of Our
Future**

Laura Taylor, Chief Analyst
Raquel Noriega, Director of Strategic Partnerships
444 North Capitol Street, Suite 224
Washington, DC 20001
877-846-7710

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TABLE OF CONTENTS

SUMMARY.....	3
I. The Broadband Data Improvement Act, Viewed Holistically, is an Effective Guide for Establishing an Integrated and Comprehensive Approach to Broadband Data Collection, Benchmark Creation, and Progress Measurement.....	5
II. Effective and Useful Broadband Mapping Must be Locally-Driven through Public-Private Partnerships and Used in Combination with Form 477 Subscriber Data.....	9
III. Communities Must be Empowered with the Proper Tools for Increasing Broadband Adoption.....	15
IV. Affordability Should be Addressed Within the Context of Other Broadband Barriers, Particularly Computer Ownership Among Families with Children at Home.....	23
V. A Community-driven Approach to Increased Broadband Adoption will Advance the Specific Policy Goals of the National Broadband Plan, as Set Forth by Congress.....	25
APPENDIX	
• Statements in Support of Connected Nation	
• Selected Letters in Support of Connected Nation	
• Connected Nation’s Mapping Frequently Asked Questions	
• List of providers who participate in the Connected Nation mapping Process	
• Selected Connected Nation Maps	
• Consumer Insights to America’s Broadband Challenge	
• The Call to Connect Minority Americans: A Connected Nation Policy Brief	

Summary

In October 2008, Congress enacted the Broadband Data Improvement Act, with unanimous bipartisan support.¹ Through this legislation, now Public Law 110-385, Congress has established a clear path for broadband expansion through state-based public private partnerships. Now through the American Recovery and Reinvestment Act (ARRA), Congress has provided \$350 million for implementation of the Broadband Data Improvement Act, alongside the nearly \$7 billion in other broadband stimulus funds to spur investment and generate demand for services, thus setting the course for collaborative work between the public and private sectors to map broadband gaps in the U.S., fill those broadband gaps, and increase broadband adoption and computer use – ultimately empowering our nation with more accessible education and healthcare, a better skilled and more mobile workforce, more products to market, and enhanced economic opportunity and quality of life for all Americans.

Connected Nation is a non-profit organization that works with states, local communities, and technology providers to increase broadband adoption and digital literacy for all Americans – both urban and rural.² For the last five years, Connected Nation has worked directly with states, local leaders, consumers, and broadband providers to build public-private partnerships to map the statewide gaps in broadband service; conduct local-level research on broadband and computer adoption and the barriers to technology use; develop grassroots technology planning teams in every county across a state for improved broadband adoption, and establish computer distribution and technology literacy programs for low-income and disenfranchised people. We work on behalf of American consumers, and we continue to find, time and again, in communities across our nation, that unserved and underserved people can *and will* overcome broadband challenges when the public and private sectors work together for meaningful change.³

To that end, we applaud Congress for passage of the Broadband Data Improvement Act, and we applaud President Barack Obama who co-sponsored the Broadband Data Improvement Act while in the Senate. Working in cooperation, President Obama and Congress chose to fully fund the Broadband Data Improvement Act through the ARRA. As the Federal Communications Commission fulfills its mandate to develop a national broadband plan, we encourage the careful consideration of how the Broadband Data Improvement Act serves as a guide for effective national broadband planning, particularly in light of the Commission's Congressional mandates to assess the extent of

¹ Broadband Data Improvement Act of 2008, Pub. L. No. 110-385 (“BDIA”). Available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ385.110.pdf Letters of support for the Broadband Data Improvement Act are attached as Appendix A.

² For a partial list of Connected Nation's partners see Appendix B.

³ Attached as Appendix C to this document are a series of testimonials from state and local officials, affirming the value and effectiveness of statewide public-private partnerships.

broadband deployment throughout the United States⁴ and to compile a list of geographic areas that are unserved by broadband.⁵

An effective national broadband plan should empower bottom-up engagement in addition to top-down programs, as Congress charges in the Broadband Data Improvement Act. Empowering local community leaders with the knowledge and tools to take action should be the priority of our national broadband plan. Federal agencies should work hand-in-hand to support state and local leaders as well as the individual consumer – both urban and rural – with meaningful resources and tools for improving broadband access and use in every American community. Every community is different, and every community has unique challenges, needs and goals. It is local leaders who understand the importance of broadband for the growth of their communities, and they understand the importance of community-specific, pragmatic technology plans to expand broadband network infrastructure and increase adoption of broadband services. If we are to achieve meaningful broadband expansion, we must work together as a nation, at all levels and in both directions – from the bottom-up and the top-down, and across both the public and private sectors.

To that end, we offer the following recommendations on the development of a national broadband plan for our country, as requested by the Commission in this docket:

I. The Broadband Data Improvement Act, Viewed Holistically, is an Effective Guide for Establishing an Integrated and Comprehensive Approach to Broadband Data Collection, Benchmark Creation, and Progress Measurement.

II. Effective and Useful Broadband Mapping Must be Locally-Driven through Public-Private Partnerships and Used in Combination with Form 477 Subscriber Data.

III. Communities Must be Empowered with the Proper Tools for Increasing Broadband Adoption

IV. Affordability Should be Addressed Within the Context of Other Broadband Barriers, Particularly Computer Ownership Among Families with Children at Home.

V. A Community-driven Approach to Increased Broadband Adoption will Advance the Specific Policy Goals of the National Broadband Plan, as Set Forth by Congress.

⁴ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996 Act) (amending the Communications Act of 1934). § 706

⁵ BDIA.

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I. The Broadband Data Improvement Act, viewed holistically, is an Effective Guide for Establishing an Integrated and Comprehensive Approach to Broadband Data Collection, Benchmark Creation, and Progress Measurement.

In March 2008, the Commission soundly ruled to establish new definitions of broadband capability, with associated speed tiers, in addition to new requirements for providers to submit subscriber data by census tract. As technology and its applications continue to evolve, the Commission may need to adjust the tiers. However, the Commission's new tiered platform and data collection process provides a solid basis for understanding broadband capability across the United States geography and demography to inform federal policy decisions.

In the NOI, the Commission acknowledges that "in order to develop a national broadband plan, we need up-to-date and complete information on existing broadband deployment and possible future deployments." The NOI goes on to state,

"We recognize that accurate and comprehensive data plays a critical role in assuring the success of a national broadband plan. As such, we seek comment on how we can ensure that any and all data collected in furtherance of developing and implementing a national broadband plan can be as accurate as possible. We also seek comment on what types of necessary public and private sector data are not being collected, how we can obtain such data, and how we should use such data in furtherance of a national broadband plan. Further, we ask how the Commission should balance legitimate confidentiality interests in the data it collects against goals of accountability and openness, as well as allowing the public to measure and review progress."⁶

In addition, the Commission seeks comment on "whether the Commission should, as part of its national broadband plan, seek to collect additional data from broadband providers, consumers, health care providers, schools, libraries, or other governmental organizations."

⁶ In the Matter of A National Broadband Plan for Our Future, GN Docket No. 09-51, Notice of Inquiry, FCC 09-51 (rel. April 8, 2009) ("National Broadband Plan NOI").

Fortunately, through the passage of the Broadband Data Improvement Act of 2008 (BDIA)⁷, Congress has established a clear path for collecting up-to-date and complete information on broadband deployment and adoption. The BDIA calls for the following:

Section 103: Improving Federal Data on Broadband

- (a) Improving Section 706 Inquiry – this section requires annual updates to the FCC Form 477, and additionally requires the Commission to “compile a list of geographical areas that are not served by any provider of advanced telecommunications capability.” It also requires the Commission to conduct demographic analysis of each unserved area, including the population count, population density, and per capita income.
- (b) International Comparison – this section requires the Commission to conduct a study that compares broadband speeds (in accordance with the FCC speed tiers) and price in 75 communities in at least 25 countries abroad.
- (c) Consumer Survey of Broadband Service Capability – this section requires the Commission to conduct periodic surveys of residents, large businesses, and small businesses in urban, suburban, and rural areas. The surveys will measure adoption of technology type, price, actual speeds, applications used, and barriers to adoption.
- (d) Improving Census Data on Broadband – this section requires the Commerce Department to work in consultation with the Commission to expand the Census Bureau’s American Community Survey to garner residential data on computer ownership, Internet adoption, and broadband adoption.

Section 104: Study on Additional Broadband Metrics and Standards

This section directs the Comptroller General, within one year of the bill’s enactment, to conduct a study to evaluate additional broadband metrics or standards that industry and the federal government could use to improve the quality of broadband data, to provide consumers with more accurate information about the cost and capability of their broadband connection, and to better compare U.S. broadband deployment and adoption with other countries.

Section 105: Study on the Impact of Broadband Speed and Price on Small Businesses

This section directs the Small Business Administration, within two years of the bill’s enactment, to conduct a study to evaluate the impact of broadband speed and price on small businesses. The study must include a survey of small businesses to understand available speeds, cost of various speed offerings, and type of broadband used.

Section 106: Encouraging State Initiatives to Improve Broadband

This section establishes the State Broadband Data and Development Grant Program, which provides grants to state-based public-private partnerships for statewide broadband expansion programs. The statewide programs shall include:

- Creation of a “geographic inventory map of broadband service” within each state. The map shall identify broadband gaps through GIS technology, based

⁷ Ibid.

on “the geographic boundaries of where service is available or unavailable among residential or business customers.” The map shall also include a baseline number of statewide households with broadband availability.

- A baseline assessment of broadband deployment in each state.
- Tracking of unserved and underserved areas within a state.
- Tracking of broadband adoption and related information technology services among residents and businesses.
- Tracking possible suppliers of broadband and related services.
- Identification of barriers to adoption among residents and businesses.
- Identification of available broadband speeds, in accordance with FCC speed tiers.
- Creation and facilitation of a local technology planning team in each county or designated region within a state. Each team shall represent a cross section of the community, including government, education, healthcare, business, organized labor, libraries, agriculture, tourism, and community-based organizations. Each team shall benchmark technology use across sectors, set goals for improved use within each sector, and develop a “tactical business plan” to reach its goals, “with specific recommendations for online application development and demand creation.”
- Collaborative work with broadband and IT providers to encourage deployment and adoption, especially in unserved and low-adoption areas, through “local demand aggregation, mapping analysis, and the creation of market intelligences to improve the business case for providers to deploy.”
- Establishment of programs to improve computer ownership and Internet access for unserved and low-adoption areas.
- Collection and analysis of detailed market data on the adoption of and demand for broadband and other IT services.
- Facilitation of information exchange between public and private sectors regarding adoption of and demand for broadband.

If these various federal, state, and local level components of the BDIA are implemented effectively and work in concert with each other, they provide an integrated and comprehensive approach to broadband data collection, benchmark creation, and progress measurement within the context of a national broadband plan.

The federal approach for BDIA implementation and national broadband planning should be integrated among federal agencies and complimentary to state and local efforts. This integrated approach should recognize the complimentary functions and needs of the federal agencies, state and local governments, consumers, technology providers, and other American stakeholders in the process. An integrated approach should effectively tap the expertise of each agency, level of government, and participating stakeholder. As part of this approach, a process for smooth data flow should be established among agencies to avoid duplication of work and resources.

State-based public-private partnerships for broadband expansion and data collection such as ConnectKentucky, Connect Ohio, Connected Tennessee, Connect Minnesota, and

many others are already well underway around the nation.⁸ In developing the national broadband plan, the Commission should fully explore the ongoing work in these states, and best practices should be identified, supported, and promoted among states.

As more and more states quickly develop statewide broadband expansion programs under the BDIA, the federal agencies should work hand-in-hand to support these locally driven programs through the creation of consistent guidelines, best practices, and coordinated access to the information and data flowing out of these state-based programs.

In Connected Nation's comments in the broadband stimulus Request for Information, Docket Number 090309298-9299-01, we recommend a number of accountability measures for grant recipients of the State Broadband Data and Development Grant Program:⁹

- Annual accountability measures should be required of all grant recipients. Documented and empirical methods of tracking broadband availability and adoption should be required of all grant recipients. Additionally, grant recipients should be required to submit an annual report on progress, to include:
 - Number and percentage of unserved households by state and by county;
 - Broadband adoption rates by state and by county;
 - Number and percentage of local technology planning teams meeting BDIA program requirements that have been formed and are operating within a state;
 - Number and percentage of tactical business plans generated by local technology planning teams across a state;
 - On-line access to GIS maps as required in the BDIA;
 - On-line access to tactical business plans generated by local technology planning teams;
 - On-line access to local market intelligence and consumer research for each county, to include barriers to broadband adoption within each county; and
 - Detailed description and statistics of programs that have been established to improve computer ownership and Internet access for unserved and low-income populations across the state.

The BDIA requires that the Department of Commerce must create a Web page that aggregates relevant information from state-based programs, including links to GIS maps. A strategic, interagency approach to the BDIA would ensure that the FCC and the USDA effectively tap into the rich information that flows from state-based initiatives of the State Broadband Data and Development Grant Program. The Commission can then use this locally driven data to supplement and build on its new Form 477 datasets and the wealth of new federal data that are now being collected as mandated in the BDIA. With clear and coordinated guidelines from federal agencies, state-based initiatives will provide the

⁸ For sample statements in support of these programs from elected officials, citizens and grassroots activists and private stakeholders, see Appendix.

⁹ [Connected Nation Comments Docket Number 090309298-9299-01](#)

underpinning for federal data gathering efforts to provide a comprehensive national dataset on broadband deployment and adoption. However, the U.S. should not settle for merely a broadband dataset. The data should be real-time, Web-based, interactive, and geographically-based so that Americans can track projects in their own neighborhoods and understand how resources are being spent. An interagency, web-based framework should allow for ARRA project prioritization and tracking, benchmark measurement, and taxpayer accountability. This integrated approach would provide a coordinated top-down and bottom-up approach for clearly understanding the national broadband landscape and measuring progress without duplication of resources.

II. Effective and Useful Broadband Mapping Must be Locally-Driven through Public-Private Partnerships and Used in Combination with Form 477 Subscriber Data.

The Broadband Data Improvement Act clearly sets forth a straightforward policy for broadband mapping. The law calls for mapping at a residential and business level, and it clearly states that the public and private sectors should work collaboratively to achieve all components of the program.

The Broadband Data Improvement Act of 2008 (BDIA) states the requirements for broadband mapping as follows:

[T]o create within each State a geographic inventory map of broadband service, including the data rate benchmarks for broadband service utilized by the Commission to reflect different speed tiers, which shall—

(A) identify gaps in such service through a method of geographic information system mapping of service availability based on the geographic boundaries of where service is available or unavailable among residential or business customers; and

(B) provide a baseline assessment of statewide broadband deployment in terms of households with high speed availability.

There are two key requirements of broadband mapping which are clearly set forth in the Broadband Data Improvement Act and the associated committee report:

- 1. The Broadband Data Improvement Act is clear that broadband mapping must be detailed and comprehensive enough to understand the geographic footprints of where providers offer broadband service, versus where they do not, at a household level.** Congress developed this language based on the Connected Nation model for broadband mapping.^{10, 11} At least eight additional

¹⁰ Connected Nation Testimony before United States House of Representatives Committee on Energy and Commerce, Subcommittee on Communications, Technology, and the Internet - "Oversight of the

states have followed Kentucky to implement the ConnectKentucky model for broadband mapping, and dozens of other states have expressed an explicit desire to use this model once federal funding is in place.

2. **The Broadband Data Improvement Act consistently requires a cooperative public-private approach to mapping and all other components of the grant program.** Again, this framework for the grant program was established by Congress based on the Connected Nation model which brings together local leaders with broadband providers to achieve household level broadband maps, statistically significant research at a local level, technology planning in every county, grassroots-driven programs to stimulate demand for broadband, and computer programs for the disenfranchised and underserved. This Connected Nation model has ultimately resulted in targeted broadband deployment and increased broadband adoption in the areas that need it most.¹²

Today, at least nine states are already using this collaborative, public-private approach for household level broadband mapping. These states have achieved or will soon achieve a broadband map that identifies areas unserved by broadband, down to the street and individual household. In those states where a household level broadband map has been developed, applicants for the \$7.2 billion in stimulus funding for broadband infrastructure now have an immediate tool for targeting projects in unserved areas. Additionally, once these infrastructure projects are funded and deployed through the ARRA, the broadband maps – which are continuously updated – will show exactly where and how broadband stimulus grants are being used to fill the broadband gaps.

Plenty of evidence exists to justify why Congress called for household level mapping in the Broadband Data Improvement Act. This household level is the only way to truly understand where the broadband gaps exist, particularly in rural areas. If broadband mapping is done at any higher level – at a geographic unit level such as used by the Census Bureau or the US Postal Service – the result will be a severe overestimation of broadband deployment across the United States.

For example, Connect Minnesota has found, through a detailed and granular method of broadband mapping at the household level, that broadband is available to 94 percent of Minnesota households. If Minnesota's broadband service availability were mapped at the level of census block groups, broadband deployment would be grossly overstated at 99.6 percent. Even at the most granular census block level, Minnesota would appear to have 96.4 percent broadband deployment – again, compared to Connect Minnesota's

American Recovery and Reinvestment Act". April 2, 2009

[http://connectednation.com/in_the_news/testimonies_and_presentations/Mefford, percent20Brian_Testimony percent20and percent20Appendix_House percent20Sub_04022009.pdf](http://connectednation.com/in_the_news/testimonies_and_presentations/Mefford,percent20Brian_Testimony_percent20and_percent20Appendix_House_percent20Sub_04022009.pdf)

¹¹ Connected Nation Testimony for U.S. Senate Committee on Commerce, Science & Transportation - [http://connectednation.com/in_the_news/testimonies_and_presentations/DC_Committee percent20testimony_04_23_07.pdf](http://connectednation.com/in_the_news/testimonies_and_presentations/DC_Committee_percent20testimony_04_23_07.pdf)

¹² See The Call to Connect Minority Americans: A Connected Nation Policy Brief, March 2009. See also Tennessee Technology Trends, October 2008.

household level mapping which shows 94 percent availability.¹³ Even going down to the census block level, this type of general mapping would assume that nearly 45,000 Minnesota households are served when they are in fact unserved. Even worse, if Minnesota's broadband deployment were mapped in terms of nine-digit zip codes, the process would become substantially more laborious and complicated, and even less accurate, since zip codes at any level are postal codes and not geographic units.¹⁴

The result of inaccurate and overstated broadband maps would be an inaccurate baseline for broadband deployment as well as inaccurate benchmarks when Congress tries to evaluate the progress and impact of the whole of the broadband stimulus funding. This does not lessen the importance of the FCC's new data collection methods by census tract through the reformed Form 477 process, which is a vast improvement over previous FCC data collection by zip codes. However, this type of data collection conducted by the FCC serves a very different purpose from the type of mapping Congress called for in the Broadband Data Improvement Act. FCC data collection by census tract (or any other geographic unit) is important for providing macro-analyses to inform federal policy development. But, it is impractical, unreasonable, and redundant to expect the FCC or any other federal agency to develop household level broadband maps without the support of public-private partnerships working on the ground with consumers and broadband providers to understand exactly where broadband is offered and where it is not.¹⁵

Connected Nation is a leader in broadband inventory mapping, having produced the first statewide broadband inventory map for Kentucky in 2005.¹⁶ Today, we have completed or are in the process of completing maps in nine states across the nation. Our extensive experience working with over 300 providers has shown us that the only viable means to accurately identify where broadband exists and where it does not is in collaboration with the provider community. Some voices have argued that this deployment information can effectively and accurately be obtained through consumer surveys or regulatory methods. In our experience, this would be a prohibitively expensive and ultimately futile exercise, particularly when it has been proven in a number of states that a collaborative and voluntary approach to broadband mapping is one that works.

That being said, it is important to understand that mapping the footprints of hundreds of providers of different sizes and types cannot be conducted through a top-down approach. The process must be local and individualized in order to produce accurate, granular,

¹³ Connected Nation Testimony before United States House of Representatives Committee on Energy and Commerce, Subcommittee on Communications, Technology, and the Internet - "Oversight of the American Recovery and Reinvestment Act". April 2, 2009

[http://connectednation.com/in_the_news/testimonies_and_presentations/Mefford, percent20Brian_Testimony percent20and percent20Appendix_House percent20Sub_04022009.pdf](http://connectednation.com/in_the_news/testimonies_and_presentations/Mefford_percent20Brian_Testimony_percent20and_percent20Appendix_House_percent20Sub_04022009.pdf)

¹⁴ For a description of the Connect Minnesota map, see Comments of Diane Wells from the Department of Commerce, State of Minnesota in docket number 090309298-9299-01.

<http://www.ntia.doc.gov/broadbandgrants/comments/790C.pdf>

¹⁵ For a thorough examination of the impracticality of a national mapping program developed by the FCC or a federal agency see Comments of Connected Nation, Inc. on Broadband Mapping, Docket 07-38, July 17th, 2008. Available at

http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520034635

¹⁶ See Frequently Asked Questions Regarding Connected Nation's Mapping Program at Appendix.

timely, and meaningful maps. Unlike subscriber information, which all providers –large and small-- have readily available in standard databases, standardized, accurate service territory data is not available to the overwhelming majority of providers. Creating accurate service territory delineations for each provider is a challenging process that imposes a high –and, at times, prohibitive--burden upon most providers. For any broadband mapping program to succeed, mapping agents must take this burden from providers and adapt to the data resources available to different providers. Quite simply, one-size-fits-all data requirements are unfeasible given the multiple types of providers of different sizes, technologies and corporate structures that provide broadband service across the nation.

Oftentimes, broadband providers – particularly medium and smaller ISPs and rural providers – do not even store data that indicate where they offer broadband service. Mapping projects through public-private partnerships work literally on the ground with these small and medium providers to help them collect, assimilate, and process the information necessary to create broadband maps. These maps are continuously updated so that the maps immediately reflect deployments as they occur – thereby ensuring that local leaders have real-time information about unserved areas so that their efforts and resources are targeted effectively. Just as importantly, public-private partnerships provide custom mapping analyses as needed for state and community leaders, overlaying local level research such as broadband barriers and demographic data such as household density on a neighborhood-specific basis. Connected Nation maps vertical assets such as water tanks and cell towers, conducts topographic and propagation analyses, and provides engineering field tests and feasibility studies at a local level. It goes without saying that all of this work is done at no additional cost to local leaders, and is included as part of the statewide efforts to help communities and broadband providers work together in the formation of business plans for sustainable broadband investment and deployment to unserved and underserved areas.

Therefore it is imperative that federal agencies implement broadband availability mapping in the manner that Congress has clearly set forth through the Broadband Data Improvement Act – by a method of household level mapping through state-based public-private partnerships. It is this local, on-the-ground approach to broadband mapping that is now being used by at least nine states and has produced maps of broadband availability and broadband speeds which are accurate, detailed, publicly accessible and transparent, verifiable, continuously updated, and perhaps most importantly, useful tool for filling the broadband gaps.¹⁷

Critics of Connected Nation’s mapping program argue that maps constructed from data shared on a voluntary basis by providers must be suspect by definition. These voices argue that such a model should be rejected and replaced by either a regulatory mandate to collect the data or a third party means of estimating the extent of the network (through, for example, random sampling). However, this argument against a collaborative, public-private approach not only runs counter to Congressional mandate, but it also proposes a model for mapping that is entirely untested and impractical. First, the only effective

¹⁷ See appendix for frequently asked questions and answers about Connected Nation broadband mapping.

means to estimate the extent of broadband service is by using data from the source – the provider community itself. Second, providers have every incentive to be truthful as they report their broadband service territory when there is in place a transparent, effective method of verification of such data. Connected Nation invests extensive resources to that effect as we discuss below.

Source data verification is a critical component of effective broadband inventory mapping for another important reason. Broadband inventory maps represent a visual, geographic estimation of broadband coverage within a state or territory. Maps are an estimation of the true extent of the network and, hence, present inaccuracies that can only be identified and corrected as the data is used and analyzed. Data verification is, therefore, a critical component of any mapping operation. Connected Nation employs and promotes a number of mechanisms to ensure the accuracy of broadband maps, and we encourage NTIA to establish high standards for mapping validation and accuracy:

1. Connected Nation engineers conduct extensive field tests, and the results of those tests are documented and compared against provider data to ensure accuracy. In instances where a discrepancy is identified (e.g. a datum shift of coordinates), Connected Nation immediately contacts the agency or provider to outline and implement corrective actions. In all states, including Minnesota, Connected Nation conducts random quality control checks to validate the latitude/longitude of infrastructure such as digital subscriber line access multiplexers (DSLAMs), broadcast towers, and other vertical assets such as water towers. Quality control checks are also conducted via spectrum analyzer to verify the frequencies being used by known unlicensed WISPs or licensed providers. Additionally, speed tests are conducted from the field using all known platforms (e.g. fiber, cable modem, DSL, fixed wireless, mobile wireless, etc.)
2. In addition to internal field tests, Connected Nation establishes in every state a transparent system for external verification of broadband availability data. This verification system includes a Web-based mapping portal for consumers, grassroots surveying and verification through local technology teams, and a broadband telephone hotline which encourages consumers to document if they want broadband and cannot get it, or to notify Connected Nation if a map contains any inaccuracies. All inaccuracies are corrected immediately. The only data that are not disclosed are proprietary data such as the exact locations of infrastructure/equipment and the specific network footprint of individual providers. In addition to the inherent proprietary nature of this data, the exact locations of individual provider's infrastructure and equipment are not disclosed to the public at large in order to protect the physical integrity of the backbone of the US communications system, which is consistent with the principles and guidelines of the National Infrastructure Protection Plan (NIPP).¹⁸ For example, on March 9, 2010, sabotage to a providers infrastructure left tens of thousands of households without landline, cell phone, Internet, *or 911* service in the California counties of Santa Cruz, Santa Clara, and San Benito. First responders reportedly

¹⁸ http://www.dhs.gov/xprevprot/programs/editorial_0827.shtm#1

resorted to ham radio, door-to-door checks, and increased patrols to prepare for any emergency situations.¹⁹ Providers and public officials alike want to protect the confidentiality of this sensitive data in order to ameliorate the risk of sabotage. It is this information that Connected Nation translates and processes to develop a household level depiction of broadband availability, to illustrate the broadband gaps in availability and speed at a level so granular that it is verifiable by all consumers, and then to validate the data through an open, Web-based, and publicly transparent broadband map.²⁰

3. Connected Nation also conducts statistical telephone surveys at the state and local levels among residential consumers and businesses to inquire about broadband availability and speed. We also ask residents and businesses about the price they pay for service, how they use the Internet, and their demand for faster broadband service. Among those who don't subscribe to broadband and/or don't own a computer, we ask detailed questions about their barriers to computer ownership and broadband adoption. We analyze all of these data against demographics in order to understand availability and adoption in relation to income, education level, race, ethnicity, age, and other demographic characteristics.

In light of our experience, Connected Nation recommended in the broadband stimulus Request for Information Docket Number 090309298-9299-01 that state-based programs receiving funding through the BDIA should be required to provide a web-based, interactive map at the household level, ensuring that NTIA can fulfill its statutory mandate through the BDIA to create a webpage that aggregates relevant information made available to the public by grant recipients.²¹ In addition, grant recipients should be required to submit a list of all incorporated places, census designated places, and any other communities that are not served by a broadband provider, thereby ensuring that the FCC can fulfill its statutory mandate through the BDIA to "compile a list of geographical areas that are not served by any provider of advanced telecommunications capability." The NTIA and FCC should work together to ensure definitions and requirements are clear in order to produce a standard data set for all unserved areas across the United States.

The collaborative, public-private process for broadband availability mapping that Congress sets forth in the Broadband Data Improvement Act establishes a practical model for developing accurate, up-to-date, and complete information on broadband availability, for use by the federal government, state governments, local officials, technology providers, and consumers. At the same time, this process enables a transparent and

¹⁹ http://www.mercurynews.com/topstories/ci_12119748?nclink_check=1

²⁰ Connected Nation's maps can be viewed on the websites of Connected Nation's state programs, such as Connect Minnesota at http://connectmn.org/mapping/interactive_map.php, Connect Ohio at http://connectohio.org/mapping_and_research/interactive_map.php, and Connected Tennessee at http://connectedtn.org/broadband_landscape/interactive_map.php.

²¹ [Connected Nation Comments Docket Number 090309298-9299-01](#)

verifiable means to gather and disseminate broadband availability data in a way that establishes clear benchmarks and is accountable to taxpayers.²²

This locally driven, public-private approach to mapping broadband availability should work in concert with the Commission's new Form 477 data collection method of subscriber data by speed tier within each Census Tract to provide a rich and comprehensive geographic understanding of the status of broadband deployment in the United States.

III. Communities Must be Empowered with the Proper Tools for Increasing Broadband Adoption

Connected Nation's mission is to empower all Americans with the infrastructure, tools and knowledge necessary to enjoy the benefits from broadband enabled technologies. In order to achieve these goals, the Connected Nation model, based on public-private partnerships and working hand in hand with state and local officials and the private sector, aims to stimulate broadband adoption at the grassroots level and, in turn, promote private investment to expand and upgrade broadband infrastructure across America. Our experience in communities across States that have embraced the Connected Nation model has shown repeatedly that this model works and that it is particularly critical among at risk populations that remain behind the curve in the adoption of broadband technologies. Comprehensive demand stimulation programs at the grassroots level ensure maximum utilization of broadband technologies and promote effective and efficient mechanisms to ensure universal access to broadband infrastructures.

Based on our experience, Connected Nation believes that an effective National Broadband Plan should recognize this success and address jointly the supply and demand barriers to broadband adoption and network expansion. Further, an effective National Broadband Plan should prioritize federal efforts to expand and promote a grassroots, bottom-up approach to broadband stimulation and expansion. In particular, a National Broadband Plan should prioritize Federal policy that promotes and empowers grassroots solutions to broadband demand stimulation among at-risk populations, which, in turn, will promote private investment in local infrastructure. Every community has different broadband and technology challenges, which are best known and corrected by community leaders who are directly impacted by the technology strength of their communities.

Connected Nation welcomes the new administration's leadership in the broadband space and urges policy leaders at the FCC, the U.S. Department of Agriculture, the Department of Commerce and state leaders across the nation to recognize that they have an important role to play to empower local leaders to become stakeholders in the technology future of their communities. In the spirit of American self-reliance, local entrepreneurship and leadership is the most effective means to enable action and change

²² See appendix for statements in support of Connected Nation mapping from state and local officials and other stakeholders.

across communities and at risk populations who are lagging behind in the technology adoption curve. Their challenges are not solely or primarily supply-side based, but often stem from a lack of awareness about the specific benefits of broadband, a lack of IT literacy skills, and a lack of income to afford computers and other IT equipment. Private sector investment in network infrastructure and upgrading, whether by local entrepreneurs or national and multinational corporations, will respond to those communities that take action towards the growth of technology usage. Public policy can and should be built to encourage, promote and expand such grassroots empowerment.

Academic research demonstrates the critical role that broadband adoption rates -- not merely availability -- can play in economic development. In particular, a report prepared for the Department of Commerce by the Massachusetts Institute of Technology Communications Futures Program demonstrated the substantial economic impact upon local communities by showing that communities in which mass-market broadband was available “experienced more rapid growth in employment, the number of businesses overall, and businesses in IT-intensive sectors, relative to comparable communities without broadband.” But the MIT report also sounded a cautionary note because it found that for most of those economic benefits to appear, “*broadband had to be used*, not just available.”²³ Without demand-stimulus programs, much of the economic potential that broadband technology offers may very well remain untapped.

Connected Nation has learned that active government assistance and support is required to build broadband infrastructure in many communities, and there is a role for this type of traditional government subsidy program within a National Broadband Plan. Yet infrastructure subsidies and/or fiscal incentives for broadband network build-out are only *one* part of a cost-effective and potent broadband promotion program. Low broadband adoption (or “take rates”) themselves are a substantial barrier to broadband infrastructure investment in many communities.

The Government Accountability Office has found that lack of availability of broadband networks is a barrier for an estimated 9 percent of American households.²⁴ In states with large rural populations, this percentage is much higher. But the GAO continued to observe that

[a] variety of market and technical factors, as well as federal and state government efforts and access to resources at the local level have influenced the deployment of broadband infrastructure. Most importantly, companies contemplating the deployment of broadband

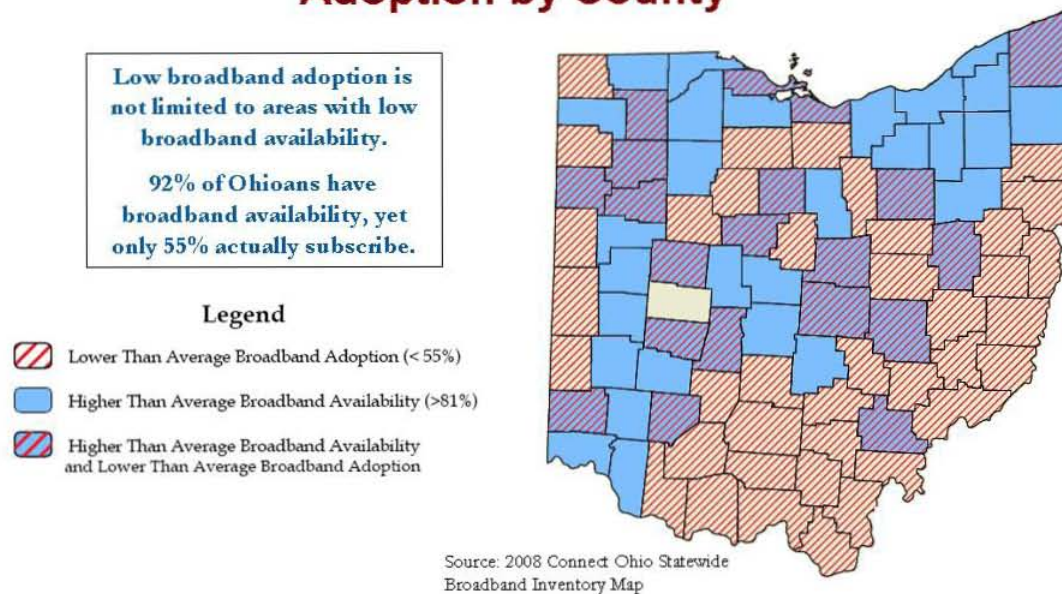
²³ S.E. Gillett, W.H. Lehr & M. Sirbu, *Measuring Broadband's Economic Impact*, Final Report, p. 3 (Feb. 28, 2006) (emphasis added). Available at: http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2006/mitcmubbimpactreport_2epdf/v1/mitcmubbimpactreport.pdf). See also G. Ford & T. Koutsky, *Broadband and Economic Development: A Municipal Case Study from Florida*, 17 REVIEW OF URBAN & REGIONAL DEVELOPMENT STUDIES 216 (2005).

²⁴ U. S. Governmental Accountability Office, *Telecommunications: Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas*, GAO-06-426, p. 18 (May 2006).

infrastructure consider both the cost to deploy and operate a broadband network *and the expected demand for broadband service*.²⁵

Thus, while the GAO estimates broadband availability in the United States at 91 percent , only 54 percent of American households actually use broadband.²⁶ This data indicates that network availability, or supply side constraints, are not the only or primary barrier to adoption of broadband services. Connected Nation's broadband availability mapping program along with its extensive survey research to understand demand drivers supports these conclusion. Figure 1 below illustrates the point using data from Ohio. Average adoption rates by county do not mirror average availability of broadband infrastructure by county. Low broadband average adoption rates is not limited to counties with low broadband availability.

Figure 1: Ohio Broadband Availability and Adoption by County

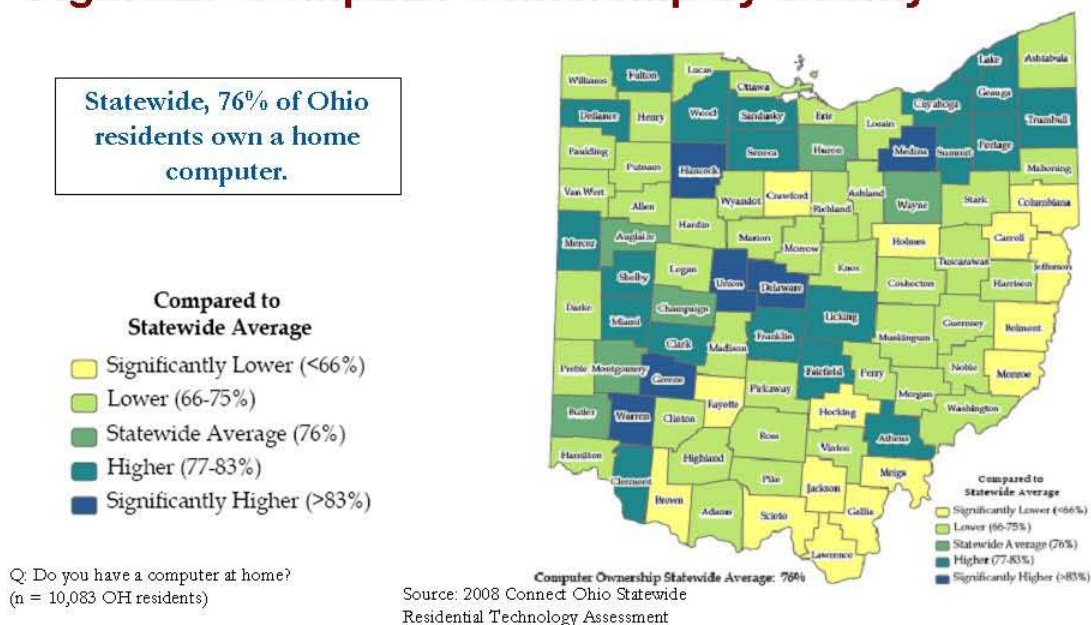


As we described in further detail below, of critical importance in this analysis is household and business the computer inventory. Figure 2 presents average household computer ownership per household by county in Ohio.

²⁵ *Id.* at 4.

²⁶ Pew Internet & American Life Project, Oct. 24-Dec. 2, 2007 Survey, *reported in* Lee Rainie, *Pew Internet Project Data Memo*, p. 3 (Jan. 9, 2008). Available at: http://www.pewinternet.org/pdfs/Pew_Videosharing_memo_Jan08.pdf.

Figure 2: Computer Ownership by County



In short, every community has its own broadband challenges; it is not a one-size fits all model. Connected Nation's research aims at empowering local leaders with information about those challenges for technology expansion of their particular community, and, together, search for solutions that are localized and; therefore, pragmatic and can enable real change.

While the GAO estimates broadband availability in the United States at 91 percent , only 55 percent of American households actually use broadband.²⁷ This data indicates that network availability, or supply side constraints, are not the only or primary barrier to adoption of broadband services. Connected Nation's survey research supports this conclusion. For instance, in 2008, 51 percent of Ohioans who do not have access to broadband at home report that the reason is that they claim that they do not need broadband, another 18 percent report that it is too expensive, 13 percent do not own a computer in the home, and only 12 percent report that they do not have access to broadband.²⁸

²⁷ Pew Internet & American Life Project, April 8 - May 11, 2008 Survey, reported in John B. Horrigan, *Home Broadband Adoption 2008*, p. 2 (July, 2008). Available at: <http://www.dis.wa.gov/hiswg/docs/Pewpercent20Broadbandpercent20Adoptionpercent20Reportpercent20-percent20Julypercent202008.pdf>

²⁸ See Connect Ohio, *2008 Residential Technology Assessment*, June 2008. Available at http://www.connectohio.org/_documents/Res_OH_09182008_FINAL.pdf

More recent research conducted by Connected Nation in Tennessee in January of 2009 reveals a similar trend. When asked why residents²⁹ did not have a broadband connection in the home, 36 percent responded that they did not have a computer in the home, 35 percent said they did not need broadband, 27 percent reported that it was too expensive, and only 17 percent reported that broadband was unavailable in their homes. When asked about computer ownership, 24 percent of Tennessee residents reported that they did not own a computer in their household in January of 2009 (down from 29 percent in July of 2007). When asked why these homes are without a computer, 57 percent report in 2009 that they don't need it or don't know why they need it, 36 percent report that it is too expensive and 11 percent report that they use a computer somewhere else.³⁰

²⁹ In January of 2009, 46 percent of all Tennessee residents did *not* subscribe to broadband service, compared to 57 percent in July 2007, at the beginning of Connected Nation's broadband stimulation programs in the State.

³⁰ See Connected Tennessee, *Technology Assessment of Tennessee Consumers, Executive Summary, January 2009*. Available at http://www.connectedtennessee.org/_documents/TNTechTrends2009ExecutiveSummary.pdf

This pattern of barriers to adoption of broadband technologies is also evident among particular demographic groups, such as ethnic minorities. Connected Nation's research shows that American minority groups continue to be among the nation's digitally disconnected. Computer ownership and broadband adoption among minority residents lag behind non-minorities.³¹ In recent surveys conducted by Connected Nation, 69 percent of minorities said they owned a home computer, compared to 76 percent of non-minorities. Among low-income minorities, computer ownership falls significantly lower at 46 percent. Mirroring these trends, 47 percent of minority households subscribe to broadband, compared to 52 percent among non-minority residents. Among low-income minorities, broadband adoption falls to a staggering 20 percent. The technology gap for minorities is evident in both rural and urban areas. It is only in suburban areas that computer ownership and broadband adoption rates are equal or better than average. In urban areas, where broadband is nearly ubiquitous, the broadband adoption rates among minorities is 47 percent, compared to 60 percent for non-minorities.

Faced with these demand-side challenges that are beyond the narrow confines of the telecommunications sector, it is natural to expect that private investors will not build or upgrade broadband infrastructure as quickly in areas where there is expected to be low penetration (or "take rates") due to these demographic, education, and income characteristics. Fortunately, policy makers can count on an army of local activists and non-for-profits across America that are implementing broadband demand stimulation programs, IT literacy programs and other programs to help push demand for technology and broadband services across at-risk populations who remain disconnected. A national broadband plan should aim to empower, expand and promote such grassroots initiatives.

Through our experience working at the grassroots level, Connected Nation has found repeatedly that community-driven, demand-side programs are the key to making broadband expansion strategies cost-effective. Targeted demand-side programs that enlist the support of the local business and educational community can have a significant and near-immediate impact upon the business case for broadband deployment. As a result, private sector investment follows, more infrastructure is constructed, and the size of the "unserved and underserved areas" shrinks substantially.

Connected Nation recently conducted research in the state of Tennessee to benchmark progress of the Connected Tennessee broadband programs. The results show the power of grassroots, community-based, demand stimulation programs. The data show that in January of 2009, 76 percent of all households in Tennessee owned a computer, which represents a 7 percent increase since the inception of Connected Tennessee in July 2007, compared to estimated national growth of 3 percent. Also, 54 percent of households subscribed to broadband service in January 2009, an increase of 26 percent since July 2007, compared to an estimated national growth of 15 percent. This includes a 28 percent increase among urban residents, 43 percent increase among suburban residents, and a 23 percent increase among rural Tennessee households. The percentage of working

³¹ "The Call to Connect Minority Americans: A Connected Nation Policy Brief," Winter 2009. Available at http://www.connectednation.org/documents/cn_minority_policybrief_final_031609.pdf

Tennesseans who say they telework has doubled since July 2007. In addition, nearly one-half of homemakers, one-third of adults with disabilities, and nearly one-fifth of retirees say they would likely join the workforce if empowered to do so by teleworking. Broadband adoption among Tennessee businesses has increased by 22 percent since July 2007. Broadband adoption among small rural businesses has increased by 41 percent since July 2007. Small rural businesses with broadband realized a 33 percent increase in their median annual revenues since July 2007, while rural businesses without broadband experienced a 33 percent decrease during the same time period³².

As demand for IT technology and broadband services increases, the market has shown it will adjust as providers invest in more and better broadband infrastructure. These demand stimulation strategies – used in combination with supply-side incentives through the ARRA – are the most effective and efficient means to ensure sustainable broadband access and continuous investment in network upgrades. Further, such a strategy will directly address the important policy goal of maximum utilization of broadband technologies. A National Broadband Plan should prioritize the development of rules and policies that encourage effective demand-side and community-based programs.

The Federal Communications Commission has a blueprint for how to achieve this in the Broadband Data Improvement Act provides specific language for effective, locally-driven, demand-stimulation programs:

- (5) to create and facilitate in each county or designated region in a state a local technology planning team—
 - (A) with members representing a cross section of the community, including representatives of business, telecommunications labor organizations, K–12 education, health care, libraries, higher education, community-based organizations, local government, tourism, parks and recreation, and agriculture; and
 - (B) which shall—
 - (i) benchmark technology use across relevant community sectors;
 - (ii) set goals for improved technology use within each sector; and
 - (iii) develop a tactical business plan for achieving its goals, with specific recommendations for online application development and demand creation;
- (6) to work collaboratively with broadband service providers and information technology companies to encourage deployment and use, especially in unserved areas and areas in which broadband penetration is significantly below the national average, through the use of local demand aggregation, mapping analysis, and the

³² For an executive summary of these benchmark results see Connected Tennessee, *Technology Assessment of Tennessee Consumers, Executive Summary, January 2009*. Available at http://www.connectedtennessee.org/_documents/TNTechTrends2009ExecutiveSummary.pdf Full results from the Business and Residential Benchmark Surveys can be found at http://www.connectedtennessee.org/research/tennessee_technology_trends_2009.php

creation of market intelligence to improve the business case for providers to deploy.³³

It is important to note that these ideas are not new in our history. They were successfully embraced by policy makers in the 1930s and 1940s under the Rural Electrification Act of 1936, which, among other things, aimed at directly engaging local communities and educating farmers and households across America about the merits of the new technology for their businesses and households. With a similar philosophy, Connected Nation's efforts, along with those of a veritable army of local activists and non-for-profits dedicated to advance these goals, are reaching out to communities in rural and inner city America to provide essential information about the state of broadband and related technologies in their communities that can help them understand their particular broadband challenges. With the proper tools and resources, local leaders can – and do – develop sustainable broadband expansion plans across their businesses, homes, schools, libraries, healthcare clinics, local government agencies, and community organizations. These tools include:

- a. Street-level, customizable (and verifiable) broadband maps for each neighborhood;
- b. Statistically significant local research on broadband use and barriers to use among various demographic groups within the community;
- c. Demand aggregation through mapping analysis;
- d. Best practices for broadband expansion, application creation, and technology literacy programs that are relevant to the specific considerations and needs of the community;
- e. Program development resources/assistance, when necessary, to implement awareness building and technology literacy programs on a locally-relevant basis.

These are the tools that Connected Nation and other grassroots organizations provide for community leaders on a daily basis. See Figures 1 and 2 above for samples of essential localized information to formulate effective grassroots broadband stimulation plans. Public policy to ensure universal access for broadband services and continuous upgrade of the technology infrastructure that fuels these services should not focus solely or in isolation on the narrow goal of supply side challenges but also should incorporate, in a systematic and holistic way, community level demand-side factors and challenges. A National Broadband Plan that fails to recognize the role of Federal, State and Local government in bridging the demand side barriers to broadband adoption, would be incomplete and hence, ineffective. Only when all Americans –regardless of place of residence, income, age, race, gender or education attainment— have access to *and adopt* the technologies that broadband enables will communities and the economy see the benefits and welfare gains that broadband applications and services provide.

³³ Broadband Data Improvement Act of 2008, Pub. L. No. 110-385.

IV. Affordability Should be Addressed Within the Context of Other Broadband Barriers, Particularly Computer Ownership Among Families with Children at Home.

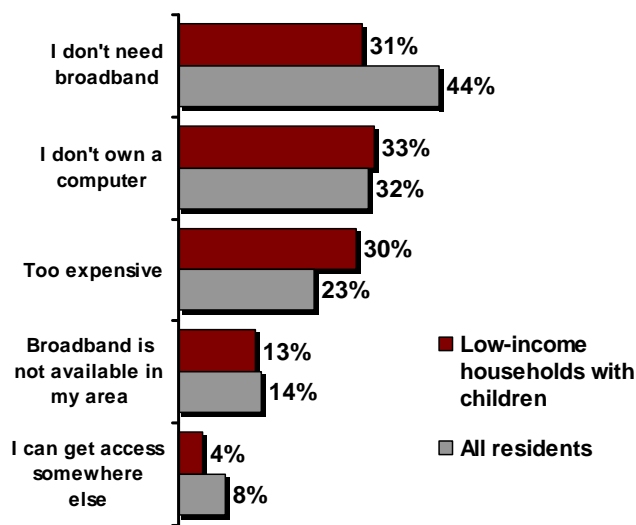
Connected Nation has learned through extensive survey research aimed at understanding the drivers and barriers to broadband demand, that affordability of broadband services is, indeed, a barrier to broadband adoption. Research from Kentucky, Tennessee and Ohio conducted in 2007 and 2008 by Connected Nation systematically showcases affordability of the service as one of the top five barriers to adoption. Affordability, however, is not the number one barrier to broadband adoption. According to Connected Nation research (see Figure 3 below) 44 percent of non-broadband adopters claim that they do not need broadband; 32 percent claim that they do not own a computer in the home; 23 percent report that they do not subscribe because it is too expensive; 14 percent report that broadband is not available in their area; and 8 percent of non-adopters report that they can get access somewhere else.³⁴ These data suggests that affordability is a barrier to broadband adoption that must be analyzed within the context of other factors affecting broadband adoption.

An interesting case study that Connected Nation has conducted focuses on an important at risk demographic in the digital revolution,--low-income households with children--³⁵ sheds light into the morphology of affordability as a barrier to broadband adoption. Not surprisingly, Connected Nation's research shows that low-income families with children lag behind technology adoption. For example, 32 percent of low-income households with children subscribe to broadband service, compare to almost double that rate, at 62 percent, for all families with children and 50 percent over all households. The data; thus, suggests that income is a barrier to computer ownership and broadband adoption even among families with children, who tend to adopt IT technologies at higher rates than the national average. Indeed, Figure 1 below shows that perceived need, computer ownership and affordability of service, rank closely --at between 30 percent and 33 percent -- among barriers to adoption of broadband services reported by low-income families with children who do not subscribe to broadband.

³⁴ See "Consumer Insights to America's Broadband Challenge: A Research Series from Connected Nation, Inc." October, 2008. Available at http://www.connectednation.org/documents/ConsumerInsightsBroadbandChallenge_20081013.pdf

³⁵ Low-income household is defined as households with annual income less than \$25,000.

Figure 3: Barriers to Broadband Adoption:

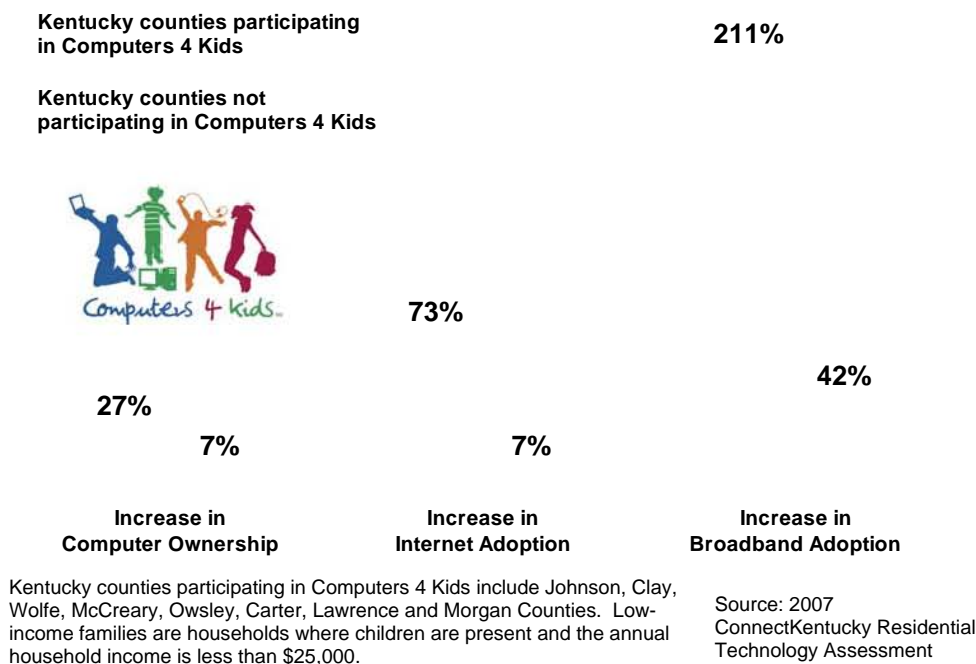


Q: Why don't you subscribe to broadband Internet service?
n = 1,494 Ohio, Tennessee and Kentucky residents without broadband service

This data is consistent with data gathered by Connected Nation through our Computers4Kids programs (C4K). C4K programs are an integral part of the Connected Nation model for broadband stimulation and have been implemented in Kentucky, Ohio and Tennessee to date. Working in partnership with public and private donors, between 2005 and April of 2009, Connected Nation placed 5,356 computers, along with printers, software, servers and other technologies worth a total of \$3.7 million, in homes of low-income children or across community centers offering computer services and connectivity to disadvantage communities. The goal of the program is to directly tackle one of the key barriers to broadband adoption: lack of computer ownership.

The program has been extremely successful and proven that computer ownership is indeed a significant barrier to adoption of broadband service. Between 2005 and 2007 the program was implemented only in the state of Kentucky. In 2007, Connected Nation conducted a benchmarking exercise that showed dramatic growths in broadband adoption. Figure 4 below shows that in counties that participated in the Computers4Kids distribution programs, average broadband take-rates among low-income families with children increased by 211 percent, compared to an increase of only 42 percent in counties that did not participate in the computer donation programs.

Figure 4: Technology Adoption Among Low-Income Families with Children



The data suggests that even low-income families when empowered by owning a computer find the means to afford a broadband connection. The data also suggests that programs aimed at tackling the affordability challenge to broadband expansion should be evaluate the interrelation of various factors impeding broadband demand and incorporate models that get computers in the home, or closer to the home of low-income families, particularly those with children.

V. A Community-driven Approach to Increased Broadband Adoption will Advance the Specific Policy Goals of the National Broadband Plan, as Set Forth by Congress.

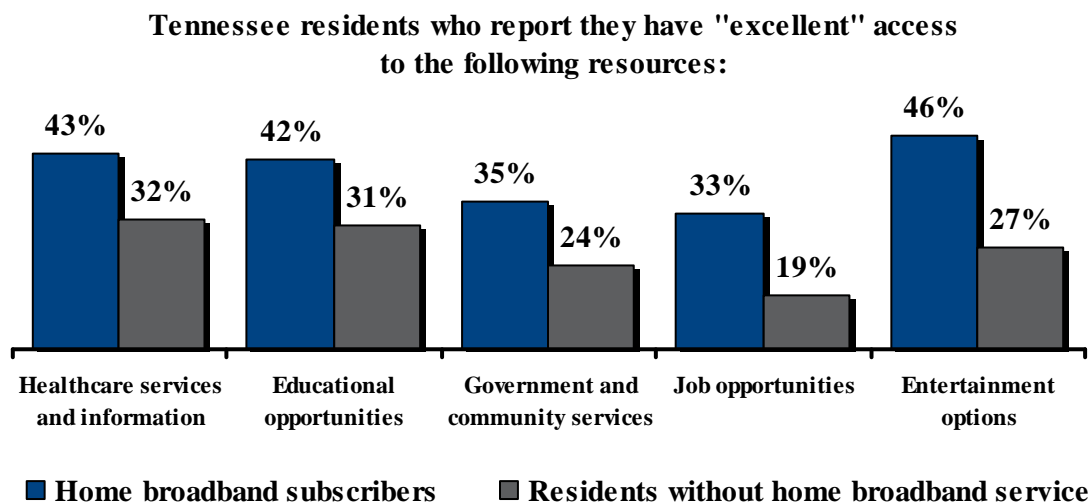
In its notice of inquiry, the Commission rightly noted that “New, innovative broadband products and applications... are fundamentally changing not only the way Americans communicate and work, but also how they are educated and entertained, and care for themselves and each other.” Considering the far-reaching impact that broadband technology can have on American lives and businesses, the Commission finds itself in a unique position to affect the lives of Americans for generations to come.

Research has shown that public-private partnerships that incorporate the insight of community-based leadership have been successful at bridging the “digital divide” among those who do not subscribe to home broadband service. According to a 2009 study of rural broadband adoption conducted by researchers at Michigan State University, the University of Louisville, and the University of Texas, Austin, “the digital divide closed and rural broadband penetration matched that of urban residents only where the

infrastructure grants were coupled with community-based efforts to promote the effective use of broadband by rural residents. In Kentucky, the ConnectKentucky program closed digital divides between young and old and better-educated and less-educated residents.”³⁶

With broadband access comes access to a variety of resources that are essential to consumer welfare. The January 2009 Residential Technology Assessment of Tennessee shows that improved access to a variety of resources, including education, healthcare, government and community services, job opportunities, and entertainment options, is correlated with home broadband access.³⁷

Figure 1.



For example, home broadband service allows residents to be more active and participate more regularly in their local government affairs. A recent Residential Technology Assessment in Ohio showed that broadband users are significantly more likely than other Internet users to go online to access information about government services (63 percent of broadband subscribers, compared to 37 percent of other Internet users), and conduct on-line transactions with the government (41 percent of home broadband subscribers compared to 22 percent).³⁸ In addition, broadband subscribers were significantly more likely to interact on-line with state government officials (36 percent compared to 23 percent), and interact with local government officials on-line (30 percent compared to 19 percent) than other Internet users.³⁹ Nationally, 55 percent of adults went on-line during the 2008 election campaign to gather news about the election or to get involved in the

³⁶ <http://news.msu.edu/story/5977/>

³⁷ Source: January 2009 Residential Technology Assessment of Tennessee (n=1,200 TN residents).

³⁸ Source: 2008 Ohio Residential Technology Assessment (n=658 Ohio broadband subscribers and 291 Ohio Internet users who do not subscribe to home broadband service)

³⁹ Ibid.

political process.⁴⁰ Clearly, home broadband adoption is giving more individuals the opportunity to voice their opinions and participate in the political process.

Another vital consideration for the political process is the protection of individuals and infrastructure. Broadband connections play an important role as a means for fire and safety officials to communicate with the public as well as among themselves, which is why the security of the broadband infrastructure is so vital. An act of sabotage to the California broadband network recently left tens of thousands residents without emergency 911 service.⁴¹ This is why Connected Nation believes it is necessary to protect highly sensitive network infrastructure information by keeping that information confidential. In order for communities to remain protected, while maintaining the ability to communicate, the protection of this sensitive information is critical.

As mentioned in earlier sections, Connected Nation has found that it is essential that community members communicate and apply locally relevant broadband information to their own needs, as well as the needs of other community members, in order to find solutions to their unique local challenges. That is why an integral part of the Connected Nation model is to develop grassroots technology teams that bring together local leaders from a variety of sectors, including government, education, healthcare, business, libraries, tourism, agriculture, and non-governmental community-based organizations. By engaging local leaders who are the most familiar with the local resources, communities can address local issues in ways that outside interest groups could not. A prime example can be found in Perry County, TN, whose Chamber of Commerce website boasts several hundred visitors a day who can access local event and contact information. According to Pat Vanden Bosche, Perry County Chamber of Commerce's Executive Director and local technology team member, "The site has made a big difference in the community. And that's what we set out to accomplish." These are the kinds of impacts that would not be possible with a cookie-cutter, one size fits all broadband agenda that has no way of knowing the needs of a local community.

One sector represented on local technology teams is the healthcare sector. Improved access to healthcare is an important benefit of home broadband service. According to a 2008 report released by Connected Nation, a seven percentage point increase in broadband nationally (comparable to the growth rate experienced in Kentucky between 2005-2007) would result in a national annual savings of \$662 million as a result of subscribers being able to access healthcare information from their homes.⁴²

The savings from healthcare is only one of many benefits from an increase in broadband adoption across the United States. According to the report, adopting a national policy to stimulate the deployment of broadband in underserved areas of the U.S. could have

⁴⁰ Aaron Smith, "The Internet's Role in Campaign 2008." Pew Internet and the American Life Project. Released date: April 15, 2009. <http://www.pewinternet.org/Reports/2009/6--The-Internets-Role-in-Campaign-2008.aspx>. Retrieved on June 8, 2009.

⁴¹ AT&T raises reward in phone-outage sabotage, *San Jose Mercury News*, April 10, 2009; http://www.mercurynews.com/topstories/ci_12119748?nclick_check=1&forced=true.

⁴² "The Economic Impact of Stimulating Broadband Nationally: A Report from Connected Nation" released February, 2008. http://www.connectednation.org/research/economic_impact_study/index.php

dramatic and far-reaching economic impacts. For instance, a seven percentage point increase in broadband adoption could result in:

- \$92 billion through an additional 2.4 million jobs per year created
- \$662 million saved per year in reduced healthcare costs
- \$6.4 billion per year in mileage saving from unnecessary driving
- \$18 million in carbon credits associated with 3.2 billion fewer lbs of CO₂ emissions per year in the United States
- \$35.2 billion in value from 3.8 billion more hours saved per year from accessing broadband at home
- \$134 billion per year in total direct economic impact of accelerating broadband across the United States⁴³

Evidence has shown, however, that these results stem from a bottom-up approach to broadband stimulus. Asking one centralized agency to determine the best way to stimulate broadband availability and adoption in every community in America would be a Herculean task. Instead, what has been shown to be effective is a bottom-up, grass-roots approach to broadband stimulation, where local leaders are active participants who guide broadband growth, empowered by teams who give them the tools and the know-how to develop their own unique solutions. We are not alone in this belief; when the United States Congress composed the Broadband Data Improvement Act, it called for funds “to create and facilitate in each county or designated region in a State a local technology planning team.”⁴⁴

One way in which local community organizations have been able to play an active role in making sure that everyone has access to broadband is through the Computers 4 Kids program. Through participation in this program, Connected Nation helps distribute refurbished computers to local organizations and low-income families to help overcome one of the top barriers to broadband adoption, namely the lack of a home computer.⁴⁵ In fact, in residential surveys conducted across three states in 2007-2008, nearly one-third (32 percent) of residents who do not subscribe to home broadband service cite the lack of a home computer as a barrier to broadband adoption.⁴⁶ To help break down this barrier, Computers 4 Kids has worked with community centers, libraries, and schools across several states to distribute computers to low-income families, as well as to help support public computer labs. As a result, each computer that Computers 4 Kids donated to a non-profit agency provided computer access to eight individuals who did not own a computer, and provided Internet access to seven individuals who did not previously access the Internet anywhere else.⁴⁷ The educational benefits of this increase in broadband access is tangible, as a community leader reported “we have found that by

⁴³ Ibid.

⁴⁴ Broadband Data Improvement Act of 2008, Pub. L. No. 110-385, 122 Stat. 4096 (codified at 47 U.S.C. §§ 1301-1304) (BDIA).

⁴⁵ 2007-2008 Residential Technology Assessments of Kentucky, Ohio, and Tennessee

⁴⁶ Ibid.

⁴⁷ “No Child Left Offline: Report for Q1, 2009”

having the computers available, over 50 percent of the youth report that they are doing better in school.”⁴⁸

The classroom is not the only place that increased broadband availability and computer access benefits residents. In addition, the workforce benefits from increased broadband adoption. Rural businesses that often struggle to survive have found that broadband provides access to a world of new potential buyers. Recent surveys of Tennessee businesses showed just how vital broadband is in enabling small rural businesses to survive, and then to thrive. Whereas the median income of small rural Tennessee businesses decreased by 33 percent from July 2007 to January 2009, the median income of similar businesses that had broadband service increased by 33 percent.⁴⁹ Indeed, small Tennessee businesses that were using broadband service had median incomes that were double those without broadband service.⁵⁰ Through the guidance of local business and industry leaders through its local technology teams, Connected Nation has helped empower thousands of small businesses by getting them access to the broadband service they need, and connecting them with resources so that they could use their new technology to their fullest potential.

One way in which broadband technology is improving workforce participation and helping reduce down-time caused by natural or man-made emergencies is through the growing adoption to teleworking, or working through home via a broadband connection. Recent surveys conducted by Connected Nation show that nearly one-quarter of the surveyed respondents who are not employed would be likely to join the workforce if they were empowered to telework, including 13 percent of retirees, 32 percent of homemakers, and 28 percent of adults with disabilities.⁵¹ Not only would broadband technology empower them to help strengthen the U.S. economy, but every gallon of gas that workers save by teleworking would produce 19.4 fewer lbs of CO₂ emissions.⁵² The impact to the United States workforce, the environment, and the lives of the individual workers, would be immense.

Connected Nation conducts extensive consumer and business surveys in an effort to identify how broadband and computers are used, as well as the barriers to broadband use. These data are analyzed by various demographic groups in order to understand usage and barriers among different demographics.⁵³

Americans with disabilities is one demographic group which falls well below average in computer ownership and broadband adoption. (figure 2).⁵⁴ However, we often find that it is those low-adopting groups that are in greatest need of broadband. According to Deborah Kaplan, former Executive Director of the World Institute on Disability, for

⁴⁸ Melanie Cox, Executive Director of the Berrytown Family YMCA, Louisville, KY

⁴⁹ Source: July 2007 and January 2009 Tennessee Business Technology Assessments

⁵⁰ Source: 2009 Tennessee Business Technology Assessment

⁵¹ Source: 2007-2008 Residential Technology Assessments of Kentucky, Ohio, and Tennessee

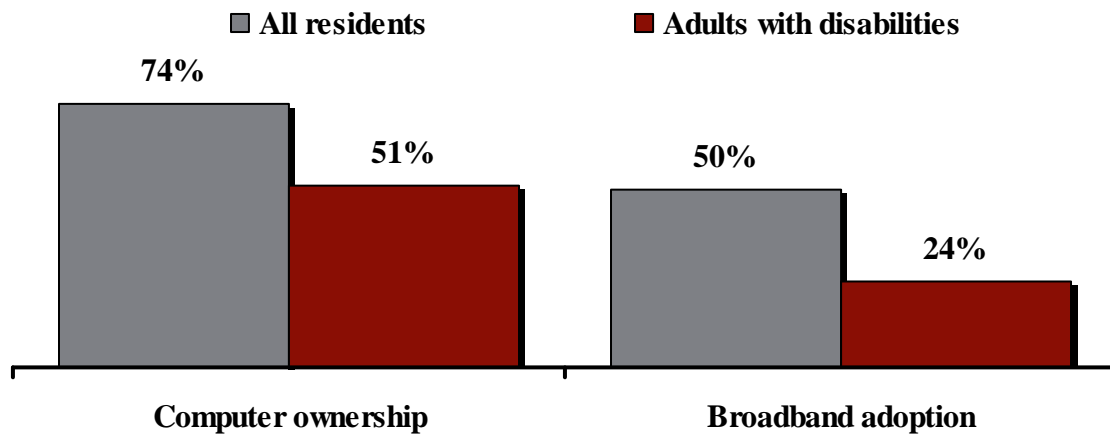
⁵² United States Environmental Protection Agency. <http://www.epa.gov/otaq/climate/420f05001.htm>

⁵³ See Appendix XXXX, Consumer Insights to America's Broadband Challenge, October 2008.

⁵⁴ Source: 2007-2008 Residential Technology Assessments of Kentucky, Tennessee, and Ohio

people with disabilities “advanced telecommunications technologies and services...are a critical communications link and equalizer with the rest of the population.”⁵⁵

Figure 2.



It is these lower adopting groups that Connected Nation targets through its grassroots demand stimulation programs to increase broadband adoption. Benchmark surveys have shown that these locally-driven programs are effective in advancing broadband adoption rates among these lower adopting (and typically marginalized or disenfranchised) groups. For example, broadband adoption rates among adults with disabilities grew by nine percentage points during the first year of Connected Tennessee, an increase of 56 percent.⁵⁶

Conclusion

As the Commission develops a national broadband plan for our country, we urge you to develop a holistic, interagency approach that addresses both supply and demand, accounts for both public and private sector interests, and uses both top-down and bottom-up strategies for broadband expansion.

Evidence has shown that this holistic, comprehensive, community-wide approach to advancing broadband deployment and adoption is one that works. After two years of thorough study, Congress has set forth a research-based path for broadband mapping and demand stimulation through community-based, public-private partnerships. Now, as federal agencies work together to implement the ARRA, our nation has an unprecedented opportunity to address America’s broadband challenge in a manner that serves the unique needs of each American community through a process that is grounded in grassroots development and guided by federal leadership.

⁵⁵ Kaplan, Deborah, “Broadband: A Vital Communications Link for People With Disabilities.” Posted 2003, retrieved on 6/3/2009. <http://www.wid.org/publications/broadband-a-vital-communications-link-for-people-with-disabilities>

⁵⁶ Source: July 2007 and July 2008 Tennessee Residential Technology Assessments

